ECO-WORTHY 5000W Solar Hybrid Inverter 48V

ECO-WORTHY 5000W Solar Hybrid Inverter Charger User Manual

Model: 5000W Solar Hybrid Inverter 48V

1. Introduction

The ECO-WORTHY 5000W Solar Hybrid Inverter Charger is a versatile power solution designed to convert 48V DC to 120V-240V AC, featuring a built-in 100A MPPT charge controller. This unit is compatible with various battery types, including Lead Acid and LiFePO4, and supports parallel operation for increased power output and flexibility in both single and split-phase configurations. It offers enhanced energy stability through multiple output and charging modes, allowing for optimized energy management and cost savings.

Figure 1.1: ECO-WORTHY 5000W Solar Hybrid Inverter Charger unit.

2. Key Features

- **Parallel Supportable:** Supports parallel operation for up to 6 units, achieving a maximum output of 30 kW. This allows for single-phase or separate-phase parallel configurations. A single inverter outputs 120 V, while multiple inverters can output 120 V/208 V/240 V in parallel.

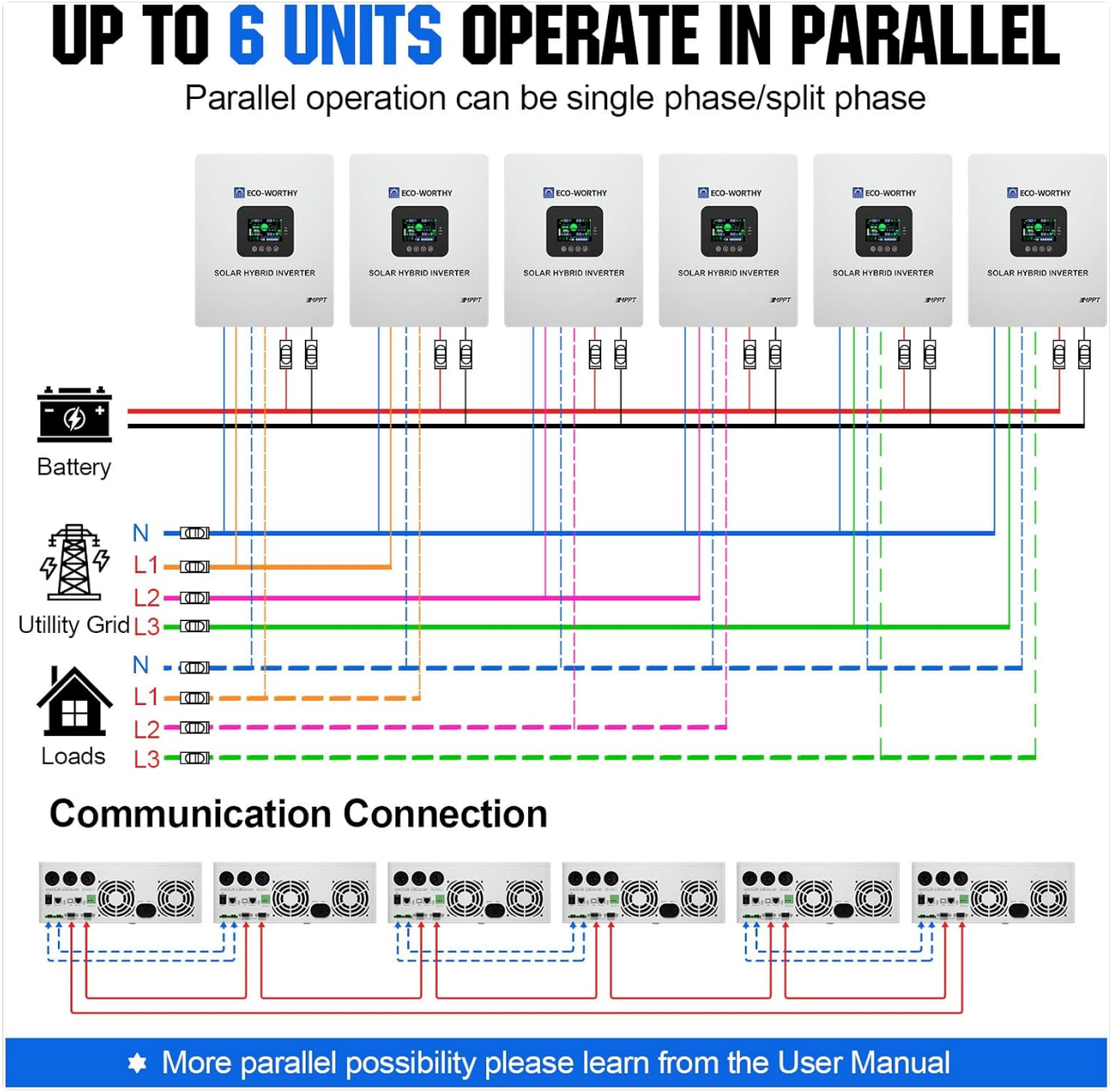

Figure 2.1: Illustration of multiple inverters configured for parallel operation.

- **Enhanced Energy Stability:** Provides reliable power through Uninterruptible Power Supply (UPS) functionality and multiple output modes, reducing reliance on traditional energy sources and leading to significant cost savings.
- **Segmented Charging/Discharging:** Features three output modes (mains priority, battery priority, PV priority) and four charging modes (Only Solar, Mains Priority, Solar Priority, and Mains and Solar hybrid charging). This allows for flexible time-period settings for mains charging/discharging to optimize energy use based on local grid conditions.

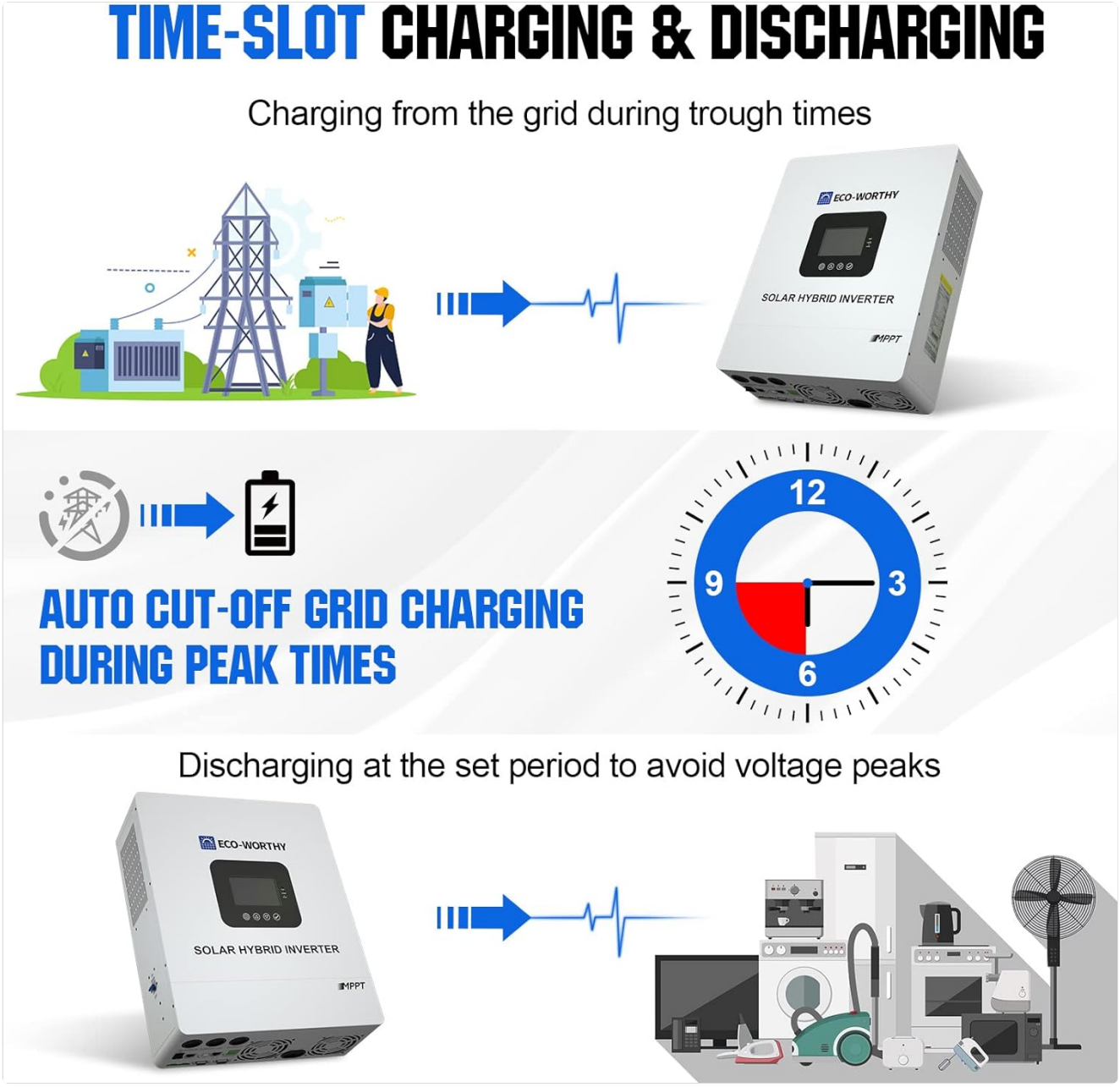

Figure 2.2: Time-slot charging and discharging capabilities for energy management.

- **Wide Battery Compatibility:** Compatible with various battery types, including AGM, GEL, Flooded, and Lithium (LiFePO4) 48V batteries.

Figure 2.3: The inverter supports various battery chemistries.

- **Easy and Safe Use:** Equipped with an LCD display for real-time data monitoring. Includes multiple intelligent protections such as PV input current/power limiting, PV input over-voltage, PV night reverse current protection, and multiple cooling fans to prevent overheating.

Figure 2.4: Detailed view of the LCD display for monitoring system status.

- **Remote Monitoring:** Monitor system data anytime and anywhere via a dedicated mobile application.

Figure 2.5: Remote monitoring of the inverter via a mobile application.

3. Setup

Proper installation is crucial for the safe and efficient operation of your ECO-WORTHY Solar Hybrid Inverter Charger. It is recommended that installation be performed by a qualified electrician or solar professional.

3.1 Unpacking and Inspection

- Carefully unpack the inverter and all accessories.
- Inspect the unit for any physical damage that may have occurred during transit. Report any damage to your supplier immediately.
- Verify that all components listed in the packing list are present.

3.2 Mounting the Inverter

- Choose a suitable mounting location that is dry, well-ventilated, and protected from direct sunlight, rain, and dust. Ensure adequate clearance around the unit for proper airflow and cooling.
- Mount the inverter vertically on a sturdy surface using appropriate fasteners.

3.3 Wiring Connections

All wiring must comply with local and national electrical codes. Ensure all power sources are disconnected before making any electrical connections.

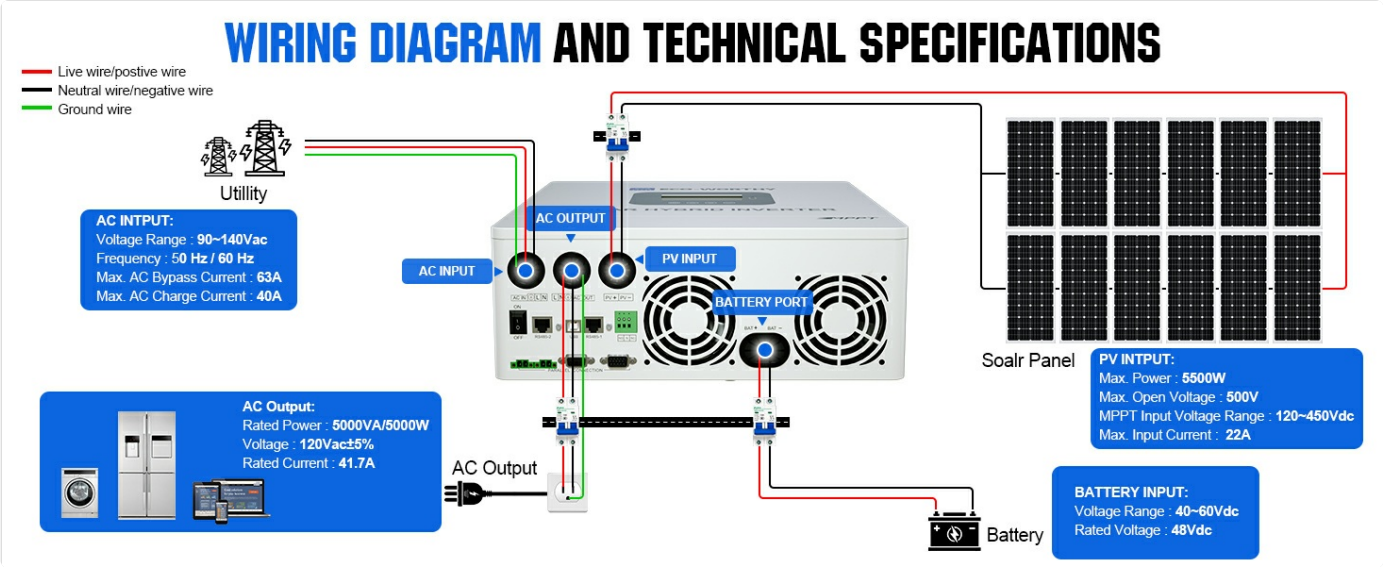

Figure 3.1: Comprehensive wiring diagram for system integration.

- **Battery Connection:** Connect the 48V battery bank to the inverter's battery terminals. Ensure correct polarity (positive to positive, negative to negative).
- **PV Input Connection:** Connect your solar panel array to the PV input terminals. Observe the correct voltage and current limits as specified in the technical specifications.
- **AC Input/Output Connection:** Connect the utility grid (AC input) and your household loads (AC output) to the respective terminals. For parallel operation, follow the specific wiring diagrams provided in the full user manual.
- **Grounding:** Ensure the inverter is properly grounded to prevent electrical hazards.
- **Communication Ports:** Connect any necessary communication cables (e.g., for parallel operation, remote monitoring, or external BMS) to the designated ports (RS485, USB, Dry Contact).

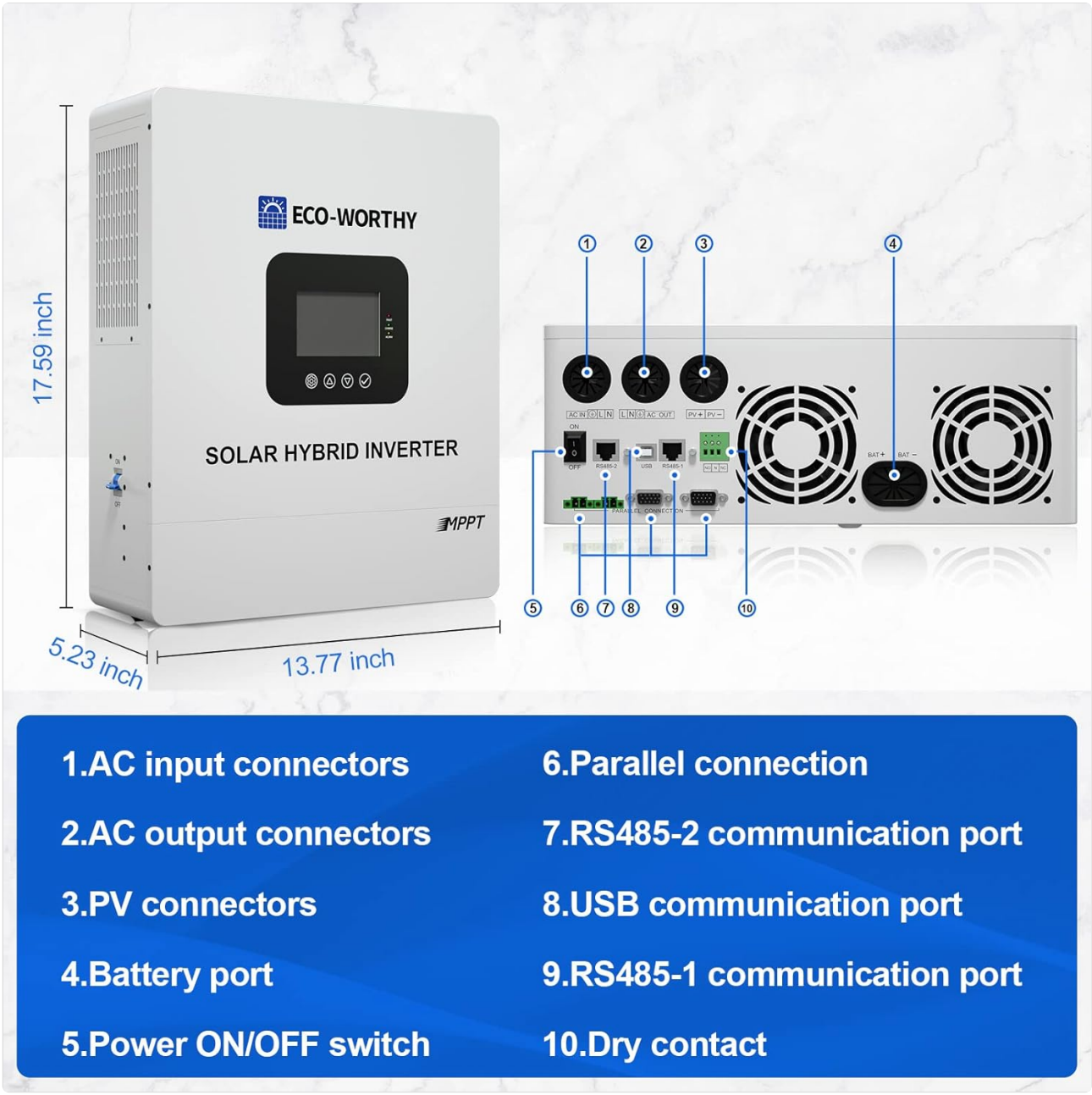

Figure 3.2: Overview of inverter ports and connections.

4. Operating Modes

The ECO-WORTHY inverter offers flexible operating modes to suit various energy management needs.

4.1 Output Priority Modes

- **Mains Priority:** The inverter primarily uses utility grid power to supply loads. Battery power is used only when the grid is unavailable.
- **Battery Priority:** The inverter prioritizes drawing power from the battery bank. Utility grid power is used only when battery voltage is low.
- **PV Priority:** Solar power is prioritized to supply loads and charge batteries. Utility grid power is used as a backup when solar power is insufficient.

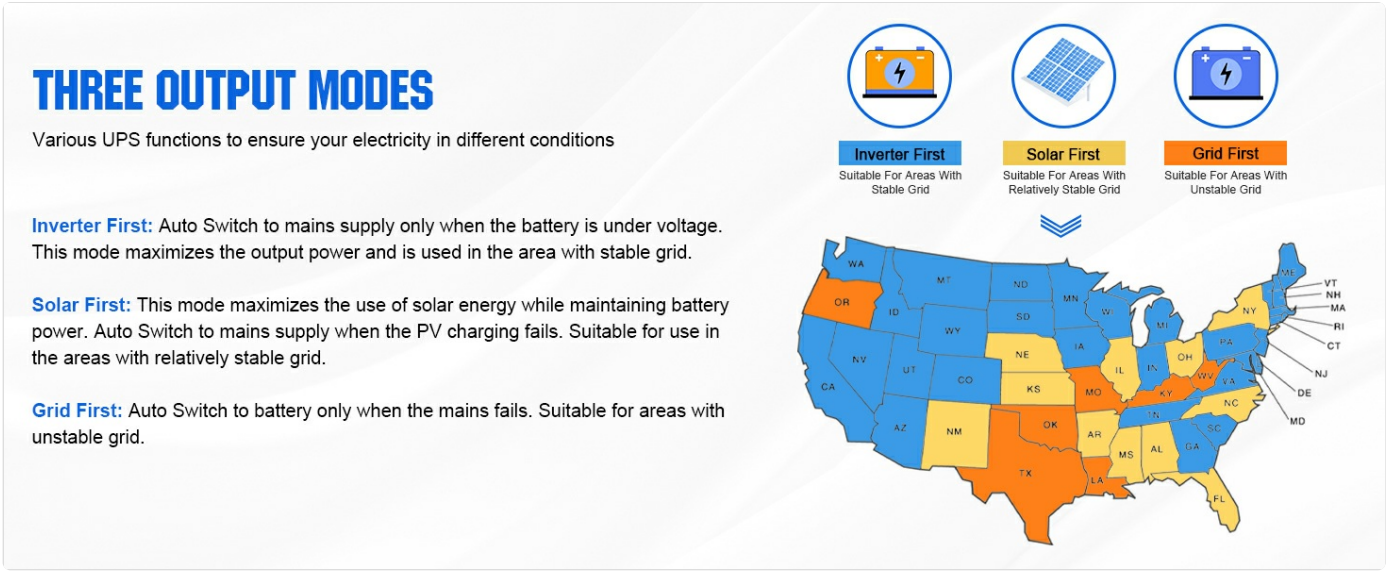

Figure 4.1: Visual representation of the three selectable output priority modes.

4.2 Charging Modes

- **Only Solar:** Batteries are charged exclusively by solar power.
- **Mains Priority:** Utility grid power is the primary source for battery charging. Solar power charges only when the grid is unavailable.
- **Solar Priority:** Solar power is the primary source for battery charging. Utility grid power is used as a supplement only when solar power is insufficient.
- **Mains and Solar Hybrid Charging:** Both utility grid and solar power are used simultaneously to charge batteries, providing robust charging capabilities.

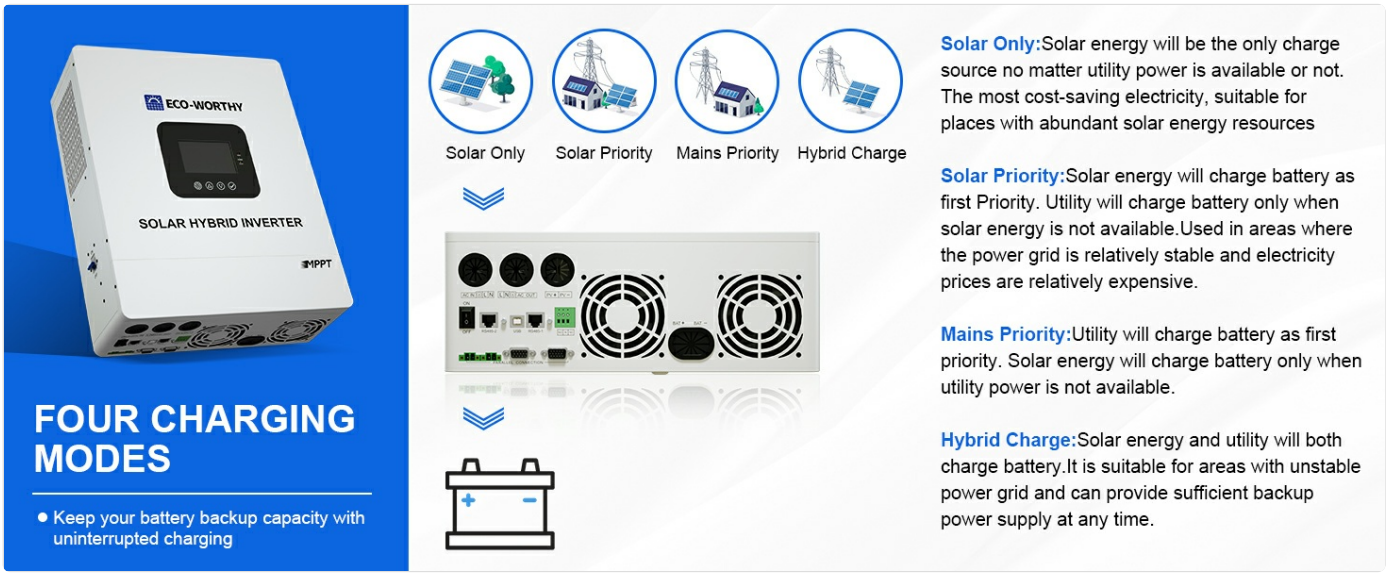

Figure 4.2: The four available charging modes for battery management.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Ensure ventilation openings are free from dust and debris to maintain proper cooling.
- **Connections Check:** Annually inspect all electrical connections (battery, PV, AC input/output) for tightness and signs of corrosion. Loose connections can lead to overheating and poor performance.

- **Battery Health:** Monitor your battery bank's health according to the battery manufacturer's guidelines. Ensure proper charging and discharging cycles.
- **Environmental Conditions:** Regularly check that the inverter's operating environment remains within the recommended temperature and humidity ranges.

6. Troubleshooting

This section provides solutions to common issues you might encounter. For more complex problems, refer to the full user manual or contact customer support.

Problem	Possible Cause	Solution
Inverter not turning on / No display	No DC input from battery; Battery voltage too low; Power switch off; Blown fuse/breaker.	Check battery connections and voltage. Ensure power switch is ON. Inspect and reset any tripped breakers or replace blown fuses.
"Fault" error on display / Lights flickering	Overload; Short circuit; Over-voltage/Under-voltage; Incompatible grid-tie inverter connected (as per user feedback).	Reduce connected load. Check for short circuits in wiring. Verify input voltages are within range. Ensure no incompatible devices are connected to the inverter's output.
Battery not charging	PV input too low/unavailable; Charging mode incorrect; Battery fault.	Check solar panel connections and sunlight. Verify selected charging mode. Inspect battery health.
Overheating	Insufficient ventilation; Overload; High ambient temperature.	Ensure clear airflow around the inverter. Reduce load. Relocate inverter to a cooler environment if necessary.

Figure 6.1: The inverter features multiple intelligent protections and cooling fans.

7. Specifications

Feature	Detail
Product Dimensions	21.25 x 17.71 x 8.66 inches

Feature	Detail
Item Weight	34.2 pounds
Manufacturer	ECO-WORTHY
ASIN	B0C54RP1J2
Country of Origin	USA
Item model number	5000W Solar Hybrid Inverter 48V
Brand	ECO-WORTHY
Recommended Uses For Product	Off-grid power, Backup power, Recreational Vehicle, Boat, Workshop
Power Source	Solar and Battery Powered
Wattage	5000 watts
Max. PV input power	5500 W
PV input voltage range	120-500 V DC
Max. MPPT Charging Current	100 A
PV Input Current	22 A
Rated Output Power	5000 W
Max. Peak Power	10000 W
Rated Output Voltage	120/240 Vac (split phase/single phase)

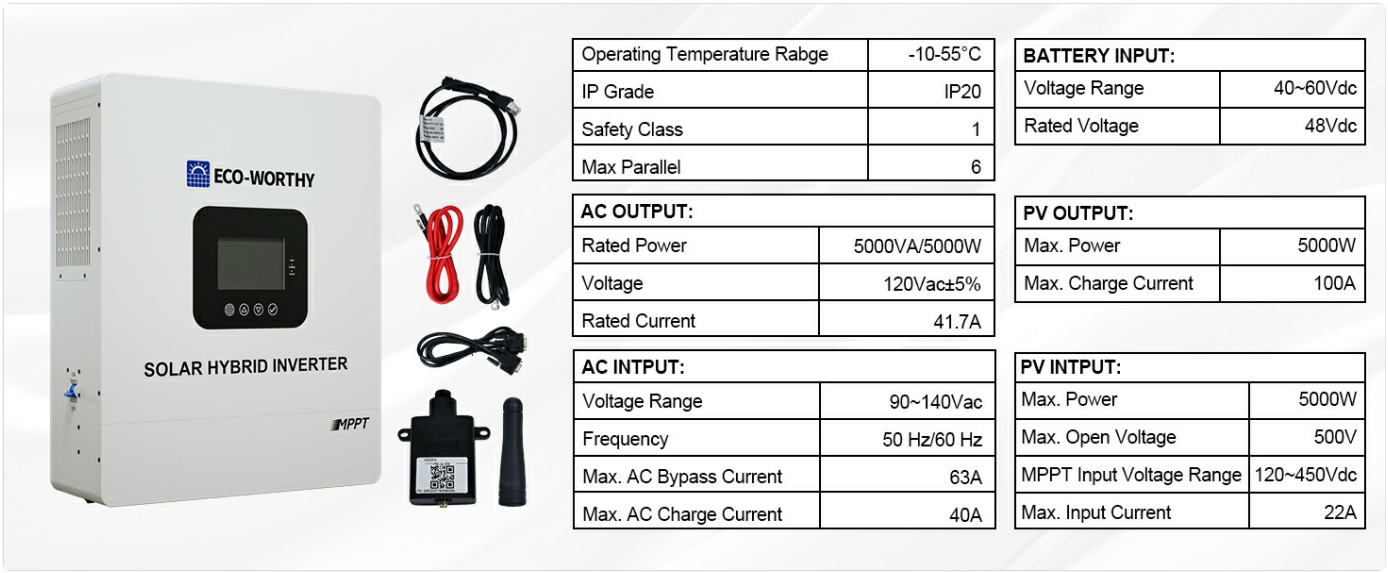

Figure 7.1: Detailed technical specifications of the inverter.

8. Warranty and Support

For detailed warranty information, please refer to the official ECO-WORTHY warranty policy provided with your product or visit the manufacturer's website. Protection plans are also available for extended coverage.
For technical support, troubleshooting assistance, or service requests, please contact ECO-WORTHY customer service.
You can also refer to the comprehensive User Manual (PDF) for in-depth information.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

Answered questions about this manual

How do I program the settings for the ECO-WORTHY 5000W Solar Hybrid Inverter 48V?

To program the ECO-WORTHY 5000W Solar Hybrid Inverter 48V, you must use the LCD screen and the four operation buttons (ESC, UP/DOWN, and ENTER) located on the front panel. Follow these steps to access...

Read full answer

Why is my ECO-WORTHY 5000W Solar Hybrid Inverter charging the battery but not recognizing it or accepting it as a power source?

If your ECO-WORTHY 5000W Solar Hybrid Inverter is charging the battery but not "accepting" or recognizing it for output, it often indicates a configuration mismatch or a connection issue that prevents the inverter from...

Read full answer

Why does my ECO-WORTHY 5000W 48V Solar Hybrid Inverter charge the battery but fail to recognize or use it for power, even though it works with solar panels and grid power?

If your ECO-WORTHY 5000W Solar Hybrid Inverter is charging the battery but not using it to power loads (not "accepting" it as a source), please check the following settings and connections:Output Priority Mode: Ensure...

Read full answer

What priority should I set for SBU, UTI, or SOL on the ECO-WORTHY 5000W Solar Hybrid Inverter?

The priority setting you choose for your ECO-WORTHY 5000W Solar Hybrid Inverter depends on your specific energy goals (e.g., saving money, ensuring backup power, or maximizing solar usage). These modes are typically found in...

Read full answer